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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/750,304

12/29/2000

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02/08/2005

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EXAMINER

BELLO, AGUSTIN

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/750,304

Applicant(s)

DASYLVA ET AL.

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,7,10,11,15,16 and 19-24 is/are rejected.
- 7) ☒ Claim(s) 3-5,8,9,12-14,17 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/21/04 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 6, 7, 10, 11, 15, 16, and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramamurthy in the article "Wavelength Conversion in WDM Networking" in view of Jopson (U.S. Patent No. 5,822,476).

Regarding claims 1, 7, 10, and 16, Ramamurthy teaches a method for optically converting wavelengths in a multi-wavelength system having W wavelength channels, wherein $W = 2N$, the method comprising the steps of: selectively directing a received frequency channel corresponding to a respective wavelength channel based upon a predetermined frequency mapping (as seen in Figures 9 and 10), but differs from the claimed invention in that Ramamurthy fails to specifically teach shifting the frequency of the selectively directed frequency channel at least once by an amount defined by $\pm 2^i \Delta f$, wherein Δf is a frequency

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spacing between adjacent frequency channels, and $i = 0, 1, \dots N-1$. However, Jopson, teaches that frequency shifting by an integer of the frequency spacing is well known in the art (column 2 lines 17-50). One skilled in the art would have been motivated to shift a signal according to the frequency spacing between adjacent frequency channels in order to preserve the order of the information transmitted. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to shift the frequency of the selectively directed frequency channel at least once by an amount defined by $\pm 2^i \Delta f$, wherein Δf is a frequency spacing between adjacent frequency channels, and $i = 0, 1, \dots N-1$.

Regarding claims 2 and 6, 11, 15, the combination of references differs from the claimed invention in that it fails to specifically teach that wavelength channel ordering is preserved by only shifting the frequency of the selectively directed frequency channel to a higher frequency or lower frequency. However, one skilled in the art would clearly have recognized that it would have been beneficial to maintain channel ordering since doing so would also preserve information ordering. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to preserve channel ordering by only shifting the frequency of the selectively directed frequency channel to a higher frequency or lower frequency.

Regarding claim 19 and 20, the combination of references teaches that the selected frequency channel is shifted logarithmically according to the applicant's definition of a logarithmic shift, namely $2^i \Delta f$ wherein $i = 0, 1, \dots N-1$. As stated in the final office action, with $i=0$, the frequency shift would result in simply Δf or the frequency spacing between adjacent frequency channels, a limitation clearly met by the combination of references. Since the

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applicant has included the possibility of $i=0$, the limitations can be met by the combination of references.

Regarding claim 21-22, the combination of references teaches that the frequency shift is constrained by a predetermined amount, namely Δf or the frequency spacing between adjacent frequency channels.

Regarding claim 23-24, the combination of references teaches that the frequency shift is based on the selectively directed frequency channel, e.g. the frequency shift is made on the selectively directed frequency channel.

Allowable Subject Matter

4. Claims 3-5, 8-9, 12-14, and 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments filed 10/21/04 have been fully considered but they are not persuasive. The applicant argues that Jopson fails to teach shifting the frequency of a channel by an integer of the frequency spacing. However, the examiner disagrees. According to the applicant's claim the frequency to be shifted is shifted by an amount of $\pm 2^i \Delta f$, wherein Δf is a frequency spacing between adjacent frequency channels, and $i = 0, 1, \dots N-1$. Given a case where $i=0$, the frequency shift would result in simply Δf or the frequency spacing between adjacent frequency channels. As such, it is clear that Jopson teaches shifting the frequency of a channel by at least some frequency spacing equal to the spacing between adjacent frequency channels, hence meeting the limitations of the claim. Furthermore, as stated in the office action,

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one skilled in the art would have been motivated to shift a signal according to the frequency spacing between adjacent frequency channels in order to preserve the order of the information transmitted.

6. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB

A handwritten signature in black ink, appearing to read "A. Bello".

**AGUSTIN BELLO
PATENT EXAMINER**

2/7/05